

WHAT IS CLAIMED IS:

1. A process for the stimulation of production of extracellular dermal matrix proteins in human tissue which comprises simultaneously delivering to said tissue ultrasound and electrical energy.

2. A process according to claim 1 wherein said electrical energy is a low energy micro-amperage sufficient to stimulate the production of polypeptide collagen and said ultrasound is such that a mechanical pressure gradient is created in the cells that produces specific resilient collagen and elastin.

3. A process according to claim 2 wherein the wave form of said electrical energy is composed of a twin-peaked, unidirectional, capacitors-discharged, high potent wave form with low energy.

4. A process according to claim 3 wherein there is employed a voltage in the range of from about 1 to about 500 volts.

5. A process in accordance with claim 4 wherein there is employed a voltage in the range of about 20-150 volts.

6. A process in accordance with claim 5 wherein there is employed a current of about 100 microamps.

7. A process according to claim 2 wherein said electrical energy is provided at a pulse frequency in the range of from about 5 pulses per second to about 105 pulses per second.

8. A process according to claim 2 wherein said ultrasound is provided at a frequency in the range of about 1 to about 4 megahertz.

9. A process according to claim 2 wherein said ultrasound is provided at an energy in the range of about 0.1-0.5 watts per squared centimeter.

10. A process according to claim 9 wherein said ultrasound energy is 0.3 watts per squared centimeter.

11. A process according to claim 2 wherein said ultrasound is pulsed.

12. A process according to claim 2 wherein said ultrasound is delivered in a continuous manner.

13. A process in accordance with claim 2 wherein the ultrasound in synchronization with the electrical energy is modulated from about a 5% duty cycle to a 50% duty cycle and back to a 5% duty cycle.

5 14. A process for the stimulation of the natural healing processes in human skin tissue which comprises creating a wound in the dermal layer of said skin tissue and thereafter simultaneously delivering to said skin tissue ultrasound and electrical energy.

10 15. A process according to claim 14 wherein said wound is created in the dermal layer of skin with the avoidance of removal or disruption of the stratum corneum or epidermis.

15 16. A process according to claim 14 wherein the simultaneous delivery of said ultrasound and electrical energy is within 24 hours of the creation of said wound in the dermal layer of said skin tissue.

17. A process according to claim 14 wherein said ultrasound is provided at a frequency in the range of about 1 to about 4 megahertz.

20 18. A process according to claim 14 wherein said ultrasound is provided at an energy in the range of about 0.1-0.5 watts per squared centimeter.

19. A process according to claim 18 wherein of said ultrasound energy is about 0.3 watts per squared centimeter.

20. A process according to claim 14 wherein said electrical energy is provided at pulse frequency in the range of from about 5 pulses per second to about 105 pulses per second.

21. A process according to claim 14 wherein said electrical energy is a low energy micro-amperage sufficient to stimulate the production of polypeptide collagen and said ultrasound is such that a mechanical pressure gradient is created in the cells that produces specific resilient collagen and elastin.

22. A process according to claim 14 wherein said ultrasound is pulsed.

23. A process according to claim 14 wherein said ultrasound is delivered in a continuous manner.

24. A process in accordance with claim 14 wherein the ultrasound in synchronization with the electrical energy is modulated from about a 5% duty cycle to a 50% duty cycle and back to a 5% duty cycle.

25. A process in accordance with claim 14 wherein said wound is accomplished by any modality having the ability to penetrate the skin to the dermal tissue without disruption, damaging or exfoliating any of the stratum corneum or epidermal tissue.

5 26. A process in accordance with claim 14 wherein the skin tissue is subjected to phonophoresis whereby a subsequent blended, modulated ultrasound and electrical energy is employed to enhance the delivery and penetration of topical creams or gels that contain collagen stimulating ingredients.

10 27. A process in accordance with claim 26 wherein following phonophoresis the stratum corneum of the skin is subjected to mechanical exfoliation.

15 28. A process in accordance with claim 27 wherein said mechanical exfoliation is carried out so as to systematically remove upper layers of tissue.